REMARKS

In response to the Office Action dated June 15, 2007, claims 1 and2 are amended. Claims 1-7 are now active in this application. No new matter has been added.

Claim 2 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite regarding the antecedent basis of the term "the input signal" in line 5 and the term "IQ modulator" in line 9. Applicant respectfully that this rejection has been overcome by the foregoing amendments.

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wessel et al. (U.S. 6,275,685) in view of Khatibzadeh et al. (U.S. 6,975,686). This rejection is traversed.

Claims 3-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeckeln et al. (U.S. 2002/0191710) in view of Booth et al. (U.S. 6,512,417) and Wessel et al. (U.S. 6,275,685). This rejection is traversed.

Claims 6 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeckeln et al. (U.S. 2002/0191710) in view of Booth et al. (U.S. 6,512,417) and Wessel et al. (U.S. 6,275,685) and Tapio et al. (U.S. 6,741,663). This rejection is traversed.

Independent claim 1 recites, in pertinent part, "using the output signal, producing an output measurement signal; **using the RF input signal, producing an input measurement signal exhibiting varying phase and a substantially constant envelope**; shifting one of the output measurement signal and the input measurement signal by substantially 90 degrees to produce a quadrature measurement signal; and mixing input measurement signals with output measurement signals to produce resulting in-phase and quadrature components, the in-phase and quadrature components representing a phase difference between the input measurement signal and the output measurement signal."

Independent claim 2 recites, in pertinent part, "using a polar modulator to produce a phase-modulated signal and an amplitude signal; **using the phase-modulated signal, producing an input measurement signal exhibiting varying phase and a substantially constant envelope**; amplifying the phase-modulated signal to produce an output signal; and using an IQ demodulator to produce the feedback information for the linearity compensation, the IQ demodulator receiving as input signals the input measurement signal and the output signal, and producing as output signals in-phase and quadrature components representing a phase difference between the phase-modulated signal and the output signal."

Independent claim 3 recites, in pertinent part, "a data modulator responsive to the data signal for producing an amplitude signal and a phase-modulated signal; an amplifier responsive to the amplitude signal and the phase-modulated signal for producing a desired communications signal; and **feedback circuitry for receiving the phase-modulated signal and the communications signal**, and producing, as feedback information in IQ (In-phase and Quadrature) form for linearity compensation of the communications signal transmitter, in-phase and quadrature components representing a phase difference between the phase-modulated signal and the communications signal."

FIG. 1 of the present application illustrates an example of the bolded elements from independent claims 1-3. FIG. 1 illustrates a feedback technique and a feedback circuitry for performing linearity compensation of an amplifier 107 by using an IQ demodulator 113 in a communications signal transmitter for transmitting a data signal by using polar modulation.

Specifically, the method of generating feedback information in IQ form according to claim 1, the method of generating feedback information in IQ form according to claim 2, and the communications signal transmitter according to claim 3 each obtain the feedback information for

the linearity compensation of the amplifier with high accuracy. The feedback circuitry (the IQ demodulator) 113 can receive the phase-modulated signal (106 or 121) and the communications signal (111 or 119), and the in-phase and quadrature components representing a phase difference between the phase-modulated signal and the communications signal can be produced as the feedback information in IQ (In-phase and Quadrature) form for the linearity compensation of the communications signal transmitter 107.

More specifically, as described in paragraphs 2 and 3 on page 5 of the specification, the phase-modulated signal inputted to the amplifier 107 can be represented as $\cos[\omega t + \Phi(t)]$, and the communications signal outputted from the amplifier 107 can be represented as $\rho(t)\cos\{\omega t + \Phi(t) + \theta + PM[\rho(t)]\}$, wherein θ is a "static" frequency-dependent phase shift, and $PM[\rho(t)]$ is a "dynamic" frequency-dependent phase shift.

According to the example of FIG. 1, the phase-modulated signal is mixed with the communications signal by using the mixer (I mixer) 115a and the mixer (Q mixer) 115b, thereby directly acquiring $\rho(t)\cos\{\theta + PM[\rho(t)]\}$ and obtaining, with high accuracy, the feedback information for the linearity compensation of the amplifier 107.

In order to establish a *prima facie* obviousness rejection under 35 U.S.C. § 103(a), all the claim limitations must be taught or suggested by the prior art. *In re Rokya*, 490 F. 2d 981, 180 USPQ 580 (CCPA 1974). Further, "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006). At a minimum, the cited prior art does not disclose (expressly or inherently) the above recited limitations.

Wessel merely discloses a linear amplifier arrangement including an amplifier 22, as is illustrated in FIG. 4 and discussed at column 6, line 35 through column 7, line 12. FIG. 4 also merely discloses a gain and phase error detector 60 which generates a phase error signal 84 and a gain error signal 82 based on an output signal of the amplifier 22 and an input signal 10.

Therefore, at a minimum, Wessel fails to disclose or suggest the above bolded recited portions of independent claims 1, 2, and 3. Wessel and can not obtain the feedback information for the linearity compensation of the amplifier with high accuracy.

Additionally, Khatibzadeh, at FIG. 4 and column 4 at lines 41-64, merely discloses a polar modulation circuit that produces a phase signal 432 that is responsive to phase changes in the modulated signal 422 and produces an amplitude signal 442 that is responsive to amplitude changes in the modulated signal 422, and the phase signal 432 is amplified by the amplitude signal 442 in an amplifier 450.

Therefore, Khatibzadeh also fails to disclose or suggest the above bolded recited portions of independent claims 1, 2, and 3. Khatibzadeh also cannot obtain the feedback information for the linearity compensation of the amplifier with high accuracy.

The other cited art does not remedy the deficiencies of Wessel and Khatibzadeh.

Thus, Applicant submits that independent claims 1, 2, and 3 are allowable over the cited art.

Under Federal Circuit guidelines, a dependent claim is allowable if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987).

Thus, as independent claim 3 is allowable for the reasons set forth above, it is respectfully submitted that dependent claims 4-7 are also allowable for at least the same reasons.

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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